Amendments to the Specification

Please amend the paragraph bridging pages 21 and 22, in the following manner:

The scanner 1 consists of a bed 2, a high voltage switching unit 8, a high voltage generation device 9, a radiation source 11 such as a radiation generation device having a radiation control device 10, a radiation detector 13 placed opposite to the radiation source 11 with respect to an examinee 12, a go-around drive device 14 which drives this radiation detector 13 and radiation source 11 in the go-around direction and a collimator 15 which controls a radiation region to be irradiated from the radiation source 11, etc. The scanner 1 further consists of a collimator control device 16 which controls the collimator 15, a scanner control device 17 which controls the go-around drive device 14, a bed movement measuring device 19 which measures an amount of relative movement between the bed control device 18 which controls the bed 2 ~~and bed 2~~ and a central control device 20 which controls these devices.

Please amend the paragraph bridging pages 23 through 25, in the following manner:

Fig. 3A shows a movement trace 24a of the radiation source (focus) during a circular orbit scan and Fig. 3B shows a movement trace 24b of the radiation source (focus) during a spiral orbit scan. If the detector is formed of a single row, when images are taken on a circular orbit as in the case of the movement ~~trace 24b~~ trace 24a, it is possible to accurately reproduce the images at the positions of the radiation source by carrying out filter correction two-dimensional back projection. However, when images are taken on a spiral orbit as in the case of the movement trace 24b, carrying out filter correction two-dimensional back projection alone results in streak-shaped artifact at that position due to data discontinuity at the end position of image taking. Thus, by applying data interpolation to the data obtained on the spiral orbit as in the case of the movement trace 24b, the data is corrected to the circular orbit data like the movement trace 24a and then filter correction two-dimensional back projection is carried out. In this way, it is possible to obtain an image with reduced discontinuity. The degree of artifact in this case is determined by the degree of

discontinuity in the X-ray source trace, that is, the degree of artifact changes depending on the moving speed of the examinee. For example, in a single row type spiral scanning X-ray tomograph (SDCT), the spiral pitch (ratio of the moving speed of the examinee to the thickness of the X-ray beam in the go-around axis direction) is generally used to an extent that substantially the entire image taking region can be covered with the data on the opposite side taken into consideration.

Please amend the paragraph bridging pages 27 and 28, in the following manner:

Based on the above described configuration, in Fig. 9, the operating data phase range calculation means determines the data range used for each voxel in step S4 first. Next, in step S5, the cone angle correction means multiplies each row of the projection data by a coefficient which is dependent on the angle of inclination of radiation and in step S6, the one-dimensional rearrangement processing means associates the fan beam projection data obtained from a fan-shaped fan beam viewed in the go-around axis direction generated from the radiation source with the parallel beam projection data. Then, in step S7, the filter correction means superimposes the reconfiguration filter on the parallel beam projection data and generates filter-processed parallel beam projection data. Next, in ~~step 8~~ step S8, the parallel beam three-dimensional back projection means performs three-dimensional back projection on the filter-processed parallel beam projection data to the back projection region corresponding to the region in concern based on the determined projection data range capable of back projection.

Please amend the paragraph at page 35, lines 2-12 in the following manner:

Next, the rearrangement processing (rebinning) using the one-dimensional rearrangement processing means in step S6 shown in Fig. 9 will be explained. Here, Fig. 32A and Fig. 32B show a relationship between a fan beam and a parallel beam. Figs. 32A to [[C]] 32C show a 180° reconfiguration of a fan beam and Fig. 32D shows a 180° reconfiguration of a parallel beam. When X-ray beams (S1 to S3) irradiated in the same vector direction viewed from the go-around axis direction are

gathered together, it is possible to virtually create a parallel beam as shown in Fig. [[32B]] 32D.

Please amend the paragraph at page 37, lines 19-21 in the following manner:

On the other hand, when an inverse Fourier transform g(t) of G(ω) is expressed as shown in ~~Expression 28~~ Expression 20, the real space filtering according to the convolution method can be expressed by ~~Expression 29~~ Expression 21.

Please amend the paragraph at page 51, line 8 in the following manner:

Here, the spiral period in the body axis direction is synchronized with the period of the reconfigured voxel in the body axis direction, and when, for example, the pixel interval (voxel pitch) in the body axis direction is ~~rpitch [mm]~~ rpitch[mm/(unit time)], the relative moving speed (bed moving speed) of the radiation source in the body axis direction with respect to the examinee is set to table=2·N·rpitch (N=1, 2, 3, ...). In this way, at the phase of the radiation source which is Nπ (N=1, 2, 3, ...) [rad], the positions on the radiation detector at which the beams passing through the voxel I (x, y, z) whose body axis direction position is Z [mm] and the voxel I (-x, -y, N·J/2+Z) whose body axis direction position is (N·J/2)+Z [mm] intersect with each other are the same, and therefore calculating a beam passing through a voxel with a view at the time of back projection is equivalent to simultaneously calculating the row positions at phases differing by Nπ (N=1, 2, 3, ...) [rad] from each other. Thus, calculations of the row direction positions of the radiation detector and interpolation coefficients over the total measuring range are completed within the π [rad] range in the view direction.